

PATENT

Serial No. 10/577,758

Amendment in Reply to Final Office Action of January 12, 2009
and Advisory Action of March 24, 2009

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A rewritable optical data storage medium for high-speed recording by a focused radiation beam, said medium comprising a substrate carrying a stack of layers, wherein the stack comprises:

a substantially transparent first auxiliary layer I1,

a substantially transparent second auxiliary layer I2 having a thickness $d_{I2} < 10\text{nm}$,

a recording layer of a phase-change material comprising a composition $\text{Ge}_x\text{Sn}_y\text{Sb}_{1-x-y}$, where $0.05 < x < 0.30$ and $0.15 < y < 0.30$, wherein the recording layer is directly on the second auxiliary layer I2 and is interposed between the first auxiliary layer I1 and the second auxiliary layer I2, -and

a third auxiliary layer I3 with a thickness d_{I3} acting as a heat sink, wherein the second auxiliary layer I2 is interposed between the recording layer and the third auxiliary layer I3, and a substantially transparent fourth auxiliary layer I4 between the third auxiliary layer I3 and the second auxiliary layer I2 for screening the third auxiliary layer I3 from a chemical influence of the second auxiliary layer I2, wherein the fourth auxiliary layer I4 comprises Si_3N_4 , and wherein $\lambda_{I2}/d_{I2} > 5 \times 10^8 \text{ W m}^{-2} \text{ K}^{-1}$, where λ_{I2} is a heat conduction coefficient of the second auxiliary layer I2.

2. (Currently Amended) The optical data storage medium as claimed in claim 1, wherein the second auxiliary layer I2 comprises $(ZnS)_{80}(SiO_2)_{20}$ and the thickness $d_{I2} < 10 \text{ nm}$.

3. (Previously Presented) The optical data storage medium as claimed in claim 1, wherein the second auxiliary layer I2 comprises at least one selected from the group of Ge_3N_4 , Si_3N_4 , Al_2O_3 , Hf_xN_y , ITO ($In_2O_3:Sn$) and Ta_2O_5 .

PATENT

Serial No. 10/577,758

Amendment in Reply to Final Office Action of January 12, 2009
and Advisory Action of March 24, 2009

4. (Previously Presented) The optical data storage medium as claimed in claim 1, wherein the recording layer has a thickness d_p , which is smaller than 15 nm.

5. (Previously Presented) The optical data storage medium as claimed in claim 1, wherein the recording layer additionally comprises at least one of In, Ag and Cu.

6. (Previously Presented) The optical data storage medium as claimed in claim 5, wherein the at least one In, Ag and Cu is present in a concentration up to 10 %.

7. (Previously Presented) The optical data storage medium as claimed in claim 1, wherein the third auxiliary layer I₃ comprises Ag.

8. (Previously Presented) The optical data storage medium as claimed in claim 7, wherein the thickness d_{I_3} of the third auxiliary

PATENT

Serial No. 10/577,758

Amendment in Reply to Final Office Action of January 12, 2009
and Advisory Action of March 24, 2009

layer I3 is at least 150 nm.

Claims 9-10 (Canceled)

11. (Currently Amended) The optical data storage medium as claimed in claim 10, wherein the fourth auxiliary layer I4 has a thickness $d_{I4} \leq 3 \text{ nm}$ $d_{I4} < 3 \text{ nm}$.

Claim 12 (Canceled)

13. (New) The rewritable optical data storage medium of claim 1, wherein the thickness d_{I2} of the second auxiliary layer I2 is less than 10nm.

14. (New) The rewritable optical data storage medium of claim 1, further comprising a further substrate covering the third auxiliary layer.

15. (New) The rewritable optical data storage medium of claim

PATENT

Serial No. 10/577,758

Amendment in Reply to Final Office Action of January 12, 2009
and Advisory Action of March 24, 2009

1, wherein a thickness of the further substrate is 0.6 mm.

16. (New) The rewritable optical data storage medium of claim
1, wherein a thickness of the further substrate is 0.1 mm.